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Mr. Fethi Benjemaa
Department of Water Resources
Water Use Efficiency Branch
SBX7-7 Program
P.O. Box 94236-001

Subject: Comments on December 21, 2011 Revised Draft Report to Legislature Quantifying the Efficiency of Agricultural Water Use

Dear Mr. Benjemaa,

The revised draft report includes numerous changes and modifications to the earlier drafts. It is understood the report was rewritten and modified during a short period of time. There are numerous misspellings and typographical errors which need to be corrected. This letter will not address those items. Comments are provided following a very quick and general review of the new document. The headings and the page number commented on are listed.

Executive Summary, page 11 – The Executive Summary defines under the section *Methodology for Quantifying the Efficiency of Agricultural Water Use* that the Crop Consumptive Use Fraction, the Total Water Use Fraction, the Water Management Fraction and the Delivery Fraction are "appropriate" methodologies for quantifying the efficiency of ag water use. No discussion is provided on why they are appropriate or what the information or data will be obtained by the implementation and use of these different fractions. Table 1 on page 14 gives specific information on what is included in each fraction, yet there is no discussion on whether or not one method is more appropriate than another method for quantifying the efficiency of ag water use. Some additional information or background should be included to clarify why these fractions are recommended and by whom.

Supplemental Indicators of Crop Productivity, page 16 – I support the description and information provided on this page where it states "These indicators do not quantify the efficiency of agricultural water use." At the December 21st meeting two Ag Stakeholder Committee members emphasized a Field Scale Methodology should be

added as an indicator for the crop productivity analysis. I strongly disagree with those comments.

Placeholder – Water Supplier Level – An Example of Application of Water Use Effieceincy Methods, page 40 – Throughout the draft report it is unclear what method is to be used for the quantification of agricultural water use efficiency. Which spatial level and which fraction is recommended? The example on page 40 mentions the supplier has "chosen to calculate the delivery fraction to demonstrate the efficiency improvements that have occurred." The implication is water suppliers get to choose which method is used. For the example provided there really may be other factors involved which would alter the Delivery Fraction. Take the 2011 water year as an example. With the unusually high precipitation amounts many agricultural regions had to delay there irrigation deliveries. This meant less water was actually delivered. Therefore, the total diverted water in 2011 would likely be less than previous years due to the effective precipitation available for evapotranspiration. On page 41 of the same sidebar discussion, under Chosen Method the statement is made "To provide a broad understanding of current efficiency of ag water use at the regional level the Department will calculate the CCUF, TWUF." It is unclear why the chosen method will provide a broad understanding of the current efficiency of ag water use at the regional level. What knowledge of the area or information will be gathered by the calculation of both methods?

Field Level – An Example of Application of Methods, page 42 – The Scenario for this example states "A local environmental coalition is confident improvements in on-farm irrigation management can reduce diversions on a small stream so water can be left instream to benefit identified ecosystem objectives without affecting existing farming productivity." It states under results that the coalition's anticipated on-farm irrigation improvements will have noticeable improvements in the CCUF and then there is a Sidebar Table 3 which indicates numbers which could be calculated showing an improvement from the existing CCUF to the new CCUF following the implementation of the environmental coalition improvements. No real description is provided regarding the actual improvements implemented. How would the coalition be able to reduce the anticipated applied water amounts? The implementation of this methodology at the field level is not clearly described and does not help in understanding the application of this methodology.

Plan for Implementation, Table 5-1 Regional Scale Data Sources and Options, page 47 – Lists under Agronomic Uses that the Source or Options for obtaining this information would be "reported by suppliers". Page 44 states that DWR would be responsible for quantifying and reporting the regional scale methods for quantifying the efficiency of ag water use.

5.2.2 Water Supplier Scale – At the bottom of page 50 is the following statement "Groundwater pumping is a particularly important part of overall agricultural water use that is not measured directly for the majority of irrigated areas in California." I believe this is an unfair statement. Many of the water districts and private land owners that we have worked with through the years have meters on their pumps. They may not make that information generally available to the public, but I do not believe it is a fair statement to say that the *majority* of all groundwater pumping is unknown.

Table 5-3 Supplier Scale Data Sources and Options, page 51 – Under Agronomic Needs and Environmental Needs a statement comparable to what is used in the 5.4 Estimated Implementation Costs section, Page 61 should be used. That is, "Information or data should be determined or based on acceptable professional practices." There is a statement that the U.S. Fish and Wildlife Service and other groups will develop an estimation procedure. What does this mean? Water suppliers will have District staff or engineering consultants prepare these reports. Professionals will be able to prepare reasonable estimates.

5.2.2.4 Schedule of Implementation, page 52 – The second description on the Phase 1 list, and also included in the second description on the Phase 2 list includes the word "cooperators." I am assuming the cooperators are water suppliers but it is unclear. Also included in a comment on page 52 is that Phase 1 Schedule of Implementation would include development of a plan to improve the key limiting data in Phase 2. I suggest including a few additional sentences that state *"Develop a plan to improve key limiting data. This would include a possible revision of the implementation plan if following a review of work a determination is made that the analyses and proposed plan implementation does not provide a reasonable quantification of agricultural water use efficiency."* The implication is that more data and more information are better. I suggest including a possible off ramp to allow revisions and changes to the proposed implementation methodology if things do not work in a reasonable and straight forward manner. I strongly recommend the KISS principle.

5.2.3 Field Scale, page 54 – One of the districts we work with is a 60,000 acre district with approximately 1,800 water users. The farms vary in size, but the average farm size throughout the District is approximately 33 acres. The report recommends making the field scale methodology voluntary. However, the information provided in the draft report seems to indicate that if a detailed field level analysis is completed it can be used to show or determine what other similar field water use efficiencies are in the same region. My adjacent neighbor and I have lived in the same neighborhood for the last 15 years. We both maintain and take care of our homes and yards. A neighbor across the street does not and his yard is a mess. How can we say if only a small percentage of field level methodology analyses are made that we will know or be able to quantify an average or general ag water use efficiency? In the conclusion of the Executive Summary DWR has recommended the highest funding priority be given to field scale methodology implementation. Page 65 states that there are only five existing mobile labs operating in various regions of California and it is only recommended increasing this number to ten. It mentions this would include the sampling up to 100 fields in each

of the ten regions of the state and then completing the analyses. That would mean only 1,000 field study analyses could be done in a given year. The one district mentioned above has 1,800 water users. If analyses are only done voluntarily at the field level the likelihood of getting a representative sample of average water use efficiency throughout a region is highly unlikely. I question again the feasibility of even considering a field level analysis as a methodology for determining agricultural use efficiency.

Table 5-5 Field Scale Data Sources and Options, page 55 – Under agronomic needs there's a reference to "Appendix II". It is unclear as to what this means. The reference was also not included in the Water Supply Scale Data Sources and Options. The last portion of Table 5-5 on page 56 has a statement "other groups to develop estimation procedure during data assessment phase." What does term "other groups" mean?

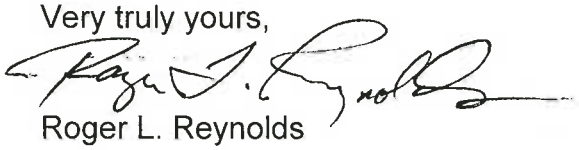
5.2.3.3 Data Collection Responsibility, page 56 -
The first sentence states "DWR recommends that the field scale methods be implemented through a co-operative cost share program for cooperative self-enrolled growers". How would this be representative of the whole region, and how will this benefit or provide useful quantification of ag water use efficiency other than for the one field analyzed?

5.2.3.4 Schedule of Implementation Phase 1, page 57 – The last comment under the Phase 1 section states "Identify existing mobile lab resources and develop a funding plan to expand..." I think it would be more reasonable to modify this to read "Identify existing mobile lab resources and determine if funding is available and if the results are useful and cost effective in quantifying the efficiency of agricultural water use."

Implementation Plan Costs – Supplier Evaluations and Costs, page 63 – The comment is made that no new water supplier costs are expected for the calculation of the methodologies presented. The only additional costs would be for "...carrying out the computations. Costs associated with this approach are expected to be minimal ..." All districts do not all maintain records on the actual crops being grown by their landowners each year. Time will be required to develop this data, including determination of actual not average Etc, the effective precipitation for the year in question, different Agronomic needs, and potential En uses occurring. These will be additional expenses to the water suppliers.

Thank you for the opportunity of commenting on the revised December 21, 2011 draft report.

Very truly yours,



Roger L. Reynolds